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ABSTRACT

The literature on spelling strategies of normal and learning disabled children is reviewed, and suggestions for the classroom teacher are offered. After a brief examination of this century's attempts to improve the basic school speller, attention is directed to M. Halle and N. Chomsky's research on the English sound system and Chomsky's theory of lexical representation, or a linguistic data bank. Charles Read's work in qualifying Chomsky's theoretical notion of language is addressed. It is suggested that this recent research into children's acquisition of word knowledge has begun to propose a different view of spelling as a highly complex, evoked intellectual process. Attention is directed to the following issues: the premise that children are creating works based on their strict interpretation of phonology; a theory of developmental acquisition (i.e., the process of acquiring correct writing skills); L. Cook's suggestion that learning disabled children lack the cognitive-linguistic maturity of their younger, normally achieving school peers; M. Gerber's theory that learning disabled spellers lack "cognitive flexibility" as they struggle to encode the language; and M. Gerber and R. J. Hall's findings concerning the differences between normally achieving spellers and learning disabled spellers. It is suggested that teachers should be aware of the developmental strategies employed by students, the need to refrain from asking children to "sound out a word," the importance of individualized teaching, and the usefulness of student-designed lists of works taken from their stories and categorized according to themes (sounds, structures, or subjects). (SEW)

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SPELLING, LANGUAGE EXPERIENCE AND THE LEARNING DISABLED: SOME RESEARCH AND OPINIONS

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Michael James

When I first began my investigations into the literature concerning English orthography and children's acquisition of word knowledge, some interesting questions arose: should there not be a smaller yet still proportional body of research in the Exceptional Children's journals? More importantly, should there not be a corpus of studies detailing how the learning disabled child attempts to encode the language? To impatiently answer both my questions: neither in the journals dealing with the linguistically impaired or in that large body of research in Learning Disabilities is there to be found a representative sample of data that addresses itself to the question of how the learning disabled child internalizes the written symbols called "words". What we do have in the literature are a scattering of articles, mostly concerned with correlates of individual differences in spelling, intervention strategies and on different spelling tests and texts. The field's efforts with remediation reads from a boring script that argues phonemic versus whole word approaches. However,

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recent inquiries by Piagetian developmental psychologists and generative-transformational linguists into the process of spelling have shed new light on this familiar subject. What follows then will be a three-fold attempt to view the familiar with the new as they apply to the learning disabled speller. First, a brief glimpse at this century's attempts to improve the basic school speller. What was it our predecessors wished from time spent on spelling tasks? Second, an examination of typical children's spelling strategies. Here questions of application to the learning disabled will be asked as well as some suggestions for further study. Third, what has the literature in Learning Disabilities had to say about spelling? So little has been written regarding the orthography of special children that any review will have to be brief. Within the last year however, two special educators have surfaced with important research on the spelling strategies of the learning disabled. Finally, I'll offer some suggestions for the classroom and how their implementation might affect the future.

The earlier view of spelling held English orthography in disrespect. Thought to be as Richard Hodges put it "an erratic artifact of its historical development", (1) our writing system was considered imperfect at best, a conglomeration of symbols that confused and irritated even the most articulate of scholars. Letters representing more

than one sound, sounds being represented by more than one letter and all this obviously erratic behavior becoming even more so as the child progressed through school. No wonder then the belief that successful spelling meant correct pronunciation. In other words if you mispronounce it, you will undoubtedly misspell it. (2)

Throughout this century the overriding emphasis at least in the arena of research, has been the efficacy of time allotted for study and drill, drill, drill. Here then was priority, where nearly all spelling research centered itself: how do we go about getting the most out of the study period and how do we instill the best possible habits to enhance memory? A classic example of our predecessor's interest with the surface patterns of English orthography is the seldom cited research by James Mendenhall's "An Analysis of Spelling Errors". (3) Mendenhall voiced an era's concern toward spelling by attempting to find answers to the day's most bothersome questions: Is there a particular "hard spot" in a word? If there is, where is that "hard spot"? In the first letter, or in the second? Where do most errors occur? What letters are most frequently associated with error? What is the significance of pronunciation in spelling?

This all pervasive view of spelling was not without its progressives. Between the wars and in the hope of

enlivening the school speller and its tedious task of memory, the Newlon-Hanna Speller was introduced. (4) It was different in that each word list was encased in a highly entertaining story, motivation being the obvious by-product.

It was not until the advent of the computer that spelling research began to undergo significant change. Paul Hanna (of the Newlon-Hanna Speller), Richard Hodges and their colleagues at Stanford University began a most ambitious project. Entitled Project 1991, their task was an analysis of the sound-letter relationships in some 17,000 words, the objective being a "once and for all" clarification of the alphabetic nature of the English language. (5) Using 300 plus phonemic-graphemic rules generated from that massive original list, the Stanford group devised a computer program to "spell" the 17,000. Out came 8,000 correctly spelled words, nearly half the total. Always clamoring for change, spelling reformers have held this single aspect of the study up as proof positive that our writing system needs to be retooled. (6) Nagging questions, however, remain (conveniently ?) ignored. What became of the remaining 8,000 plus words? Interestingly enough, nearly 37% of the misspelled words contained only one error. Furthermore, nearly all of these errors came as a result of an insufficient computer program, not I may add, as the result of a chaotic writing system. The final evaluation then of

the Stanford Project has to be based on the total results of the computer's efforts: nearly 15,000 of the 17,000 words would have been spelled correctly if the program had only contained provisions for higher order phonological rules as well as for scribal idiosyncracies.

Just about this same time, as the sixties drew to a close, Richard Venesky, by publishing his manuscript on the graphical structure of English orthography and its relation to sound, (7) added new insight into the regularity and diversity of our writing system. Venesky feels that, originally, the English orthographic system may have had direct phonemic-graphemic relationships, but it has evolved into something far different and certainly far more complicated than a simple surface explanation could ever give. Venesky wrote:

> The simple fact is that the present orthography is not merely a letter-to-sound system riddled with imperfections, but, instead, a more complex and regular relationship wherein phoneme and morpheme share leading roles. (8)

What the Venesky thesis bears out is the more intently we probe into the structure of our written language, the more consistency and predictability we will find.

It took Noam Chomsky and Maurice Halle 15 years of research, conversation and lecture before, as they so modestly wrote, their "brief sketch" of the English sound system could be published. (9) What these transformational grammarians

have given us is a theory that radically departs from the past: the English writing system is nearly optimal for its purpose.

To define how we use language, the Chomskyian hypothesis stresses, not a reliance on simple surface patterns of English, but instead proposes a theoretical model he calls "the lexical representation". (10) Here representation translates as a linguistic data bank. This view runs counter to the previously held definition of our orthographic system as being strictly alphabetic, a simple letter-sound system fraught with error. The generative transformational theory, stated ever so simply postulates that each of us has the intuitive facility to generate language from the generalizations (transformations) drawn from this lexical data bank. This "source" could be defined as a most economical method for storing our linguistic blueprints. Instead of single words being stacked one upon the other as the theory of language learning once held, these transformational grammarians believe we store only what we need; sets of core linguistic data, and then, when called upon, derive from these "basic sets" what we observe as the surface patterns of language: sentences.

Each of us has a storehouse of language rules which enable us to make our linguistic selves known; enough phonological "main ideas" to enable us, as language users,

to generate linguistic decisions such as stress and vowel alternation to name just a few, at very nearly automatic rates. This alternative hypothesis of Chomsky's has important implications. If indeed this theoretical notion of a lexical data bank is valid, then our efforts with acquiring the skills of written language are best facilitated by learning to generalize, not by learning to memorize. The obvious watchword then, of such an orthographic system, is respect for the language user as decision maker.

This pre-Chomsky review cannot be complete without some discussion concerning the Learning Disabled. Although never labeled as such before the mid-sixties definition, the learning disabled did exist in schools, clinics and homes. As to be expected, the literature regarding special children did not vary from the expected view of how children learn. All was not quiet though. There were subversives. One was at UCLA. Grace Fernald, whose clinic for the learning disabled once bore her name, wrote:

> No better method of developing bad spelling habits could be devised than the spelling dictation as given in many of our schools, even at this present enlightened stage of education. (11)

Enlightened it may have seemed, yet it was not too long before Fernald's time that learning disabled children were referred to in the literature as "stupid". There was once even mention of the need for a "spelling hospital". (12)

Chomsky's writings are theories, abstractions of how he believed children acquire and use language. What was needed, and ultimately what followed, were attempts to qualify and quantify the extent to which this "lexical representation" exists, if a concept can exist at all.

One of the first attempts to qualify Chomsky's theoretical notion of language was conducted by Charles Read, now of the University of Wisconsin, then of Harvard, during a series of pre-school observations near Boston. What Read discovered in his analysis of children's writing, and what later was to be expanded on by others, has formed the basis for a new approach to the old familiar school subject.

This recent research into children's acquisition of word knowledge has begun to propose a thoroughly different view of the spelling process, one that is not so bound by behavioral mechanistics. Instead of spelling skills being taught as so many sequential layers, we now know that children develop, quite naturally, efficient spelling strategies through their varying experiences with the language. As these experiences grow, so do spelling skills. In light of these findings, spelling has come to be viewed as a highly complex, evoked intellectual process. (13)

Besides Charles Read, a handful of researchers, James Beers of William and Mary and Edmund Henderson from Virginia to mention a few, have begun their inquiries into how young

children acquire the psycholinguistic skills to write. They all contend spelling is a developmental process, born out of a child's intuitive ability to understand the phonological structure of his language. (14) What these researchers have done is to observe how young children "invent" words, how they judge and organize sounds, how they relate one sound to another and which sounds they regularly abstract away from. (15) In short, young children through their invented spellings, develop a phonological system that is highly abstract and vastly different from the adults around them. So different in fact, that many invented spellings are considered by both parents and teachers as haphazard efforts to reproduce adult orthography.

Among the myriad data reported by Read in his 1971 study, and a few years later by Henderson and Beers, is the notion that young children are able to recognize the phonetic relationships they have represented in spelling. During Read's studies in Boston, he drew the tentative conclusion that young children used vowels in a highly abstract yet systematic manner. Vowels were placed during the building of words according to the child's analysis of the vowel's phonetic features. Let me explain by example: Primary grade children, in their early spelling efforts, rely on a "letter name" strategy; they substitute the closest sounding letter name for a medial short vowel, i.e., MAT for met, TIP

for top and PITTY for putty. The phonological rationale is quite simple: the first sound heard in articulating the long i is nearest to the sound for o in hot or u in cup. (16)

Gradually, by repeated exposures to print, these children begin to realize that besides names, letters can have sounds, too. This short vowel phase is exemplified by THET for that and WANT for went. First grade teachers can readily testify to the difficulty experienced during this entry phase; young children are confused because they are becoming exposed to the many sided vowel. However, what Read and later Beers and Henderson have pointed out, and what in fact lends substantiation to Chomsky's thesis, is these vowel substitutions are seldom random, seldom unpredictable guesses. To paraphrase Beers, children seem to employ a phonological search strategy that enables them to locate the short vowel closest to the short vowel sound needed. (17)

What seems to be underpinning this premise of orthographic development is a suggestion that children are creating words based on their strict interpretation of phonology. These are not individualistic attempts to invent writing with each child's renderings being different from the next. On the contrary, these researchers, as well as others, (18) have found that children invent alike graphemic patterns for alike phonemic patterns.

This small group of researchers has begun to extend their inquiries to older children's experiences with the language as well as the dialectically different child. (19) Their analysis found children refining their invented spellings, gradually coming to understand and use conventional orthography, only to fall back on earlier spelling strategies when new vocabulary was encountered. Although far from complete and certainly not conclusive, the data gathered has begun to substantiate a theory I call "developmental acquisition", which may be defined as the process of acquiring correct writing skills. This process is a developmental one, passing through a series of invariant stages of refinement.

The first phase of acquisition is born out of a child's quest to illustrate his curiosity with the environment. Labeled variously as Pre-Phonetic or Pre-Literate, this phase is where very young children typically have not yet acquired any stability with written language. Spelling inventions are scribbles, ABC blocks, letters and numbers. (20) These are not "pictures", they are children's word inventions.

The second phase of writing and learning to spell is a time when youngsters begin to acquire some knowledge of the sound system. Usually during this stage, children substitute letter names for elements of words. What I mean here might

be best pictured as D for dog or K for car. Sometime during the first year of school and depending entirely upon each child's experiences with the language, children pass from this stage into a phase illustrated earlier by my examples of vowel transitions and substitutions. During this letter-name strategy children exhibit a truly remarkable ability to manipulate their language to meet their ever growing spelling needs. Stable words (like their given names) are spelled with regularity, but children's inventions become extremely complex and abstract, yet highly systematic. Besides the short vowel/long vowel matches mentioned earlier, children's writing samples show what often appears on the surface to be a disregard for nasals, m and n. In other words, KADE for candy and GOWIG for going. (21) Closer inspection though, reveals that the articulation position of the consonant that follows will predict when the nasals are omitted. If m or n appear in the initial or final position, no problem, they are included. Not having been made aware of these highly abstract representations, no wonder then parents and teachers believe them to be so haphazard.

As children's experiences with writing increase, accuracy with spelling increases. The next stage, known variously as Vowel Transition or the Transitional Stage is the most adult like of all the pre-adult phases. Children usually sometime during their second or third grade year

begin to display abilities as conventional spellers. TABL for table and THRU for through. Yet experimentation with higher order phonological rules leads, as it does with oral language acquisition, to over-generalizations: BAIK for bake and LIEK for like. The final stage, of course, is conventional orthography, where the written word is usually expressed correctly. From all these studies we can now begin to understand spelling as a developmental process. ALL of these inquiries stress one concept above all else: to enlarge and extend a child's growing awareness of visible language does not mean providing lists of words to memorize. Spelling success, drill and habits are not necessarily drawn from the same philosophical hat.

All of the research cited so far has dealt with a "typical" population of children. In fact Read even listens to the argument that his pre-schoolers were very bright, unusually gifted youngsters. (23) What then can be applied to the learning disabled speller? Little in the way of research, much in the way of conjecture. What there is of both, follows.

Until this last year research with the learning disabled speller was mainly centered around identification and remediation: when, where and how do I intervene for optimal success? Remediation treatments for years have been built on the neurological assumptions derived from the medical

model of Learning Disabilities. Elena Boder's Diagnostic Screening Procedure, which was introduced here at the Reading Conference in 1968, is one such attempt, based on results from spelling tests, to classify dyslexics into deficit groups. (23) However, if we understand recent linguistic inquiries as suggestive of the developmental nature of word knowledge, then these attempts to define dyslexia with a definition derived from dyslexic's spellings seems so utterly wasteful and obviously pointless.

Two studies have now begun to depart from the familiar direction taken by spelling researchers in special education. In a longitudinal study, Louisa Cook analyzed the spelling component of 15 dyslexics' Wide Range Achievement Test protocols. (24) Cook reports that the spelling strategies observed in typical young children are very much like those employed by older dyslexic students. She suggests that learning disabled children lack the cognitive-linguistic maturity of their younger, normally achieving school peers. Since Cook's data comes from secondary sources, she can only speculate as to what might have been. Had the teachers been aware of their student's emerging orthographic strategies, it may have indicated instruction was beneficial, even if the student's spelling test scores remained low. In other words, by looking out for their developmental progress, as teachers we can better

assess our instructional endeavors. Let's use their writing to tell us if our teaching is successful.

In a series of studies and interviews focusing on the developmental sequences of learning disabled children, Mike Gerber of UC Santa Barbara has begun to suggest that learning disabled spellers lack "cognitive flexibility" as they struggle to encode the language. What is of extreme interest though, in addition to the findings regarding cognitive strategies, is what Gerber and his colleague R. J. Hall are reporting about the learning disabled child's perceptions of the spelling process. (25)

Gathered from a battery of 21 questions designed to assess the differences between normally achieving spellers and learning disabled children, the Gerber-Hall study presents data that conjures up some rather intriguing questions:

1. When questions arose regarding personal goals and limitations as well as what was considered conducive to a successful spelling environment, most of the children believed books in the home and encouragement to study greatly affected spelling ability.

2. Although learning disabled children perceived the importance of books and encouragement, they seemed to view spelling ability from a single perspective, where their normally achieving peers interpreted spelling ability from

many perspectives. I speculate this "tunnel vision" view of writing may come from language experiences, or a lack of them.

3. When questioned about personal preferences in word selection versus teacher selection, every learning disabled student except one felt they would do better if they could select their own words to learn. Words would be easier to learn as well as easier to remember. It has been my experience that this self-selection preference arises from a child's mode of instruction. As professionals we are entirely too ethnocentric; we have insisted that our preference in the study of language is what is best for the student. We have seldom allowed our students the opportunity to make decisions.

The Gerber-Hall study leads quite naturally into a philosophy that stresses spelling/language growth as a logical outgrowth of spelling/language use; use here does not imply assigned lists, adult rules or applied techniques for remediation. Use here means experience. Experience means knowledge. Knowledge means success. An approach to language that stresses children's interpretations of their language is essential to school success.

As conclusion I will ask a question often asked by teachers: How can I begin to sort through this near constant stream of research to find what I need for my

classroom? Let me offer some personal opinion cloaked as suggestions:

First, I will argue and will continue to argue: for the learning disabled a classroom that emphasizes children's experiences with their language is best. An instructional system that dictates to children that they parrot adult language is disrespectful of a child's natural curiosity to explore his language.

Second, as teachers we need to become aware of the developmental strategies employed by our students. Our ability to accurately analyze a student's writing and then make the necessary pedagogical decisions is of critical importance.

Third, one of the decisions we should try and refrain from making is to ask children to "sound it out". I know this sounds heretical yet the research already cited tells us that children rely heavily upon phonological information. Let us not confuse our students by asking them to sound out a word when they have already done so. Be ready to suggest alternatives. (26)

Fourth, some of those alternatives might be <u>student designed</u> lists of words taken from their stories and then categorized according to any one of a number of themes; sounds, structures, or subjects. Language experience classrooms have little visible wall space; they are covered with words,

stories and pictures. As child language is created by children their ability to utilize it will increase tremendously.

Fifth, let us not forget that we are all idiosyncratic learners. We are all in different places at different times. We must individualize and do the bulk of our teaching from what our students produce with their writing. Simply stated, let us teach from what our students write, dictate or draw.

Finally, all of these opinions offered as suggestions are only possible when we ourselves understand that any language has a richness deserving of our respect. Only by surrounding ourselves with the literary successes of many civilizations can we hope to achieve literacy with our children.

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